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EDITORIAL

New Aspects of Physics of Magnetic Resonance and Its Applications

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Magnetic resonance has widely been used to study condensed media since the observation of EPR (1944) and NMR (1946) in these objects. The goal of this special issue is to set off some perspective directions in the area of the magnetic resonance (MR) and its applications. Although the papers collected in this issue cannot cover all aspects of modern trends, they may give a flavor on the current state of the art of interesting researches. Let us make a brief review of the content of this issue.

First of all, we would like to underline articles, in which fundamentally new approaches in the methods of the MR and its applications are presented:

Yu. M. Bunkov, A. V. Klochkov, T. R. Safin, K. R. Safiullin, and M. S. Tagirov investigate the Bose–Einstein condensation (BEC) of magnons in nuclear magnetic resonance experiments with several solid-state antiferromagnets; it has been found that the magnon BEC suppresses the formation of a spin echo signal that confirms the formation of the magnon BEC state in considered systems.

M. S. Kuznetsova presents the original results of the investigation of nuclear spin dynamics in nanostructures with negatively charged InGaAs/GaAs quantum dots characterized by the strong quadrupole splitting of nuclear spin sublevels; the main methods of the investigation are experimental measurements and theoretical analysis of the photoluminescence polarization as the function of the transverse magnetic field (effect Hanle); experimental data are analyzed using an original approach based on the separate consideration of behavior of the longitudinal and

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